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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,528	03/31/2004	Shan C. Clark	42P18249	1572

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EXAMINER

CHU, JOHN S Y

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 03/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/815,528

Applicant(s)

CLARK

Examiner

John S. Chu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,5,7,8,11-14,18-20 and 22-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-14 and 25-30 is/are allowed.
- 6) ☒ Claim(s) 1,4,5,7, 8, 11,18-20 and 22-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

This Office action is in response to the amendment filed January 3, 2006.

1. The rejection under 35 U.S.C. 103(a) as being unpatentable over GUTSCHE et al 6,033,977 in view of ZAMPINI et al is **withdrawn** in view of the arguments by applicant wherein the sacrificial material is not taught to be used to fill the first openings in the method.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1,4,5, 7, 18-20 and 22-24 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by ZAMPINI et al 6,503,689.

The claimed invention is drawn to the following:

1. A process, comprising:

providing a substrate;

applying an anti-reflective coating comprising a radiation path altering additive

above the substrate;

applying a photoresist above the anti-reflective coating; and

patterning the photoresist with radiation.

ZAMPINI et al anticipates the claimed invention at Example 3 in column 18, line 65 – column 19, line 15. Here the example discloses the claimed process wherein an anti-reflective layer is coated on a substrate, the photoresist composition is applied onto said anti-reflective layer which is then exposed and developed to form a pattern.

Applicants are further directed to 13, lines 50-67 wherein ZAMPINI et al disclose the presence of crosslinked polymer particles in the anti-reflective layer. This disclosure anticipates the recited claim 9 and 18 and the dependent claims which depend on those claims.

The arguments by applicant have been fully considered in view of the amendment , however the rejection is repeated wherein the Office sees all material as having some measure of reflection, thus by claiming a reflective material in claim 1 and 18 fail to distinguish it over the prior art reference wherein the components used have some measure of reflective properties, i.e. they can be seen visibly.

4. Claims 1, 4, 5, 7, 18-20, 22-24 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by ENOMOTO et al 2004/0072420 A1.

The claimed invention has been recited above and is included by reference.

ENOMOTO et al anticipates the claimed invention at column page 9, subparagraph [0085] – page 10, subparagraph [0091] and in claim 13 seen here:

13. A method for manufacturing a semiconductor device, comprising applying an anti-reflective coating composition according to any one of claims 1 to 11 onto a substrate and baking it to form an anti-reflective coating, covering said coating with a photoresist, exposing the substrate covered with said anti-reflective coating and said photoresist, developing and transferring an image onto the substrate by etching to form integrated circuit elements.

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The method anticipates the recited process of claims 1 and 18 as well as the dependent claims

The anti-reflective composition of ENOMOTO et al comprises light absorbing compounds as recited in subparagraphs [0039] – [0043] and meet the claimed additive as recited.

The arguments by applicant have been fully considered in view of the amendment, however the rejection is repeated wherein the Office sees all material as having some measure of reflection, thus by claiming a reflective material in claim 1 and 18 fail to distinguish it over the prior art reference wherein the components used have some measure of reflective properties, i.e. they can be seen visibly.

5. Claim 12-14 and 25-30 are allowed.

None of the prior art references of record disclose the claimed multi-layer mirror as an additive in the ARC nor the process of using a sacrificial anti-reflective coating comprising a spin-on polymer and a plurality of refractive polymer beads.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Chu whose telephone number is (571) 272-1329. The examiner can normally be reached on Monday - Friday from 9:30 am to 6:00 pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Cynthia Kelly, can be reached on (571) 272-1526

The fax phone number for the USPTO is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PMR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John S. Chu

Primary Examiner, Group 1700

J.Chu

March 20, 2006